Small Business Innovation Research/Small Business Tech Transfer

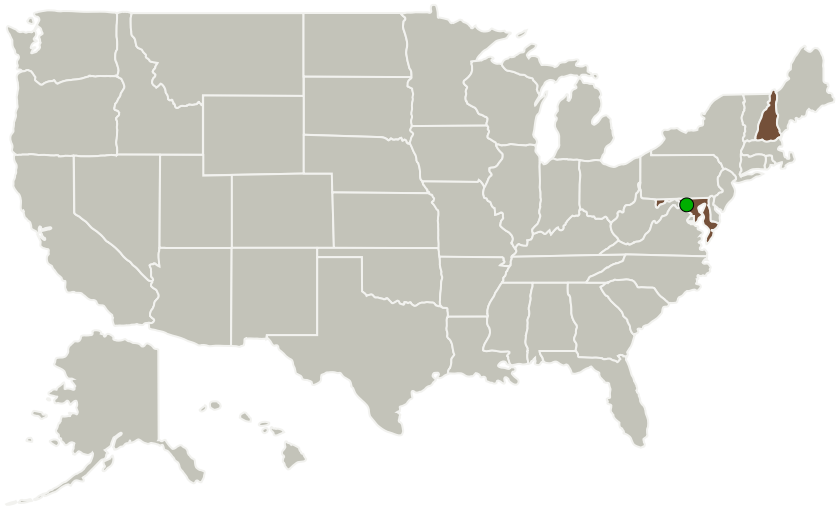
High Temperature and High QE Broadband Longwave Infrared SLS FPA for LANDSAT, Phase I

Completed Technology Project (2012 - 2012)

Project Introduction

We propose a high-performance broadband infrared focal plane array (FPA) for the Thermal Infrared Sensor (TIRS) on NASA's LANDSAT satellite. The FPA will feature a cutoff wavelength of 13 microns, operate at > 55K, have a format of 640x512, quantum efficiency > 30%, and will be realized using Type-II InAs/GaSb strained layer superlattice (SLS) photodiodes. In Phase I we will develop the basic diode with extended cutoff wavelength and pixel passivation improved in order to support high temperature operation. Phase II will optimize design, material, and process to develop and deliver FPAs to NASA-GSFC for evaluation. The relatively high operating temperature promised by SLS is expected to be of particular benefit to LANDSAT.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
QmagiQ, LLC	Lead Organization	Industry	Nashua, New Hampshire
Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland

High Temperature and High QE Broadband Longwave Infrared SLS FPA for LANDSAT, Phase I

Table of Contents

High Temperature and High QE Broadband Longwave Infrared SLS FPA for LANDSAT, Phase I

Completed Technology Project (2012 - 2012)

Primary U.S. Work Locations	
Maryland	New Hampshire

Project Transitions

February 2012: Project Start

August 2012: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140676)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

QmagiQ, LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

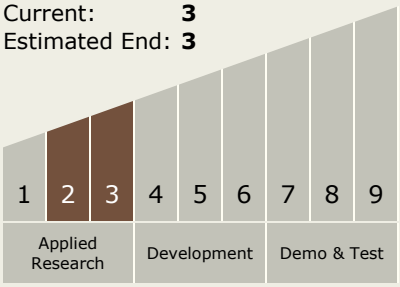
Carlos Torrez

Principal Investigator:

Mani Sundaram

Technology Maturity (TRL)

Start: **2**
Current: **3**
Estimated End: **3**



High Temperature and High QE Broadband Longwave Infrared SLS FPA for LANDSAT, Phase I

Completed Technology Project (2012 - 2012)

Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.1 Detectors and Focal Planes

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System